Safety Standards for Window Cleaning

WAC 296-878-100

Scope

These rules apply to all window-cleaning activities performed on the inside or outside of a building in which the window cleaner is working from a level that is located more than 48 inches above grade.

Notes

Safety Standards for Window Cleaning

WAC 296-878-100

Summary

WAC 296-878-10005

YOUR RESPONSIBILITY:

Make sure workers clean windows safely, and properly use and maintain their window-cleaning equipment.

Important:

Window-cleaning equipment includes window-cleaners' belts, boatswain's chairs, rope descent systems, ladders, supported scaffolds and the support equipment used to suspend employees cleaning windows.

You must

Training

Train workers to use window-cleaning equipment
WAC 296-878-11005 ..... Page 110-1

Building surfaces and fixtures

Make sure building surfaces and fixtures are safe to use
WAC 296-878-12005 ..... Page 120-1

Inspection procedures

Inspect the area to be cleaned
WAC 296-878-13005 ..... Page 130-1

Inspect window-cleaning equipment before use
WAC 296-878-13010 ..... Page 130-1

Scope

Safety Standards for Window Cleaning

WAC 296-878-100

Summary

Develop site-specific service and emergency plans

Equipment

Warning signs and barricades

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Safety Standards for Window Cleaning

WAC 296-878-100

Summary

Window-cleaners' belts and anchors

Boatswains' chairs

Rope descent systems

Safety Standards for Window Cleaning

WAC 296-878-100

Summary

Equipment prohibited

Prohibit equipment from use
WAC 296-878-21005 ..... Page 210-1

Definitions

WAC 296-878-220 ..... Page 220-1

WAC 296-878-11005

Train workers to use window-cleaning equipment

You must

- Provide the following training to workers before they use window-cleaning equipment on the job:
  - Proper care and maintenance of the equipment
  - Review manufacturer's instructions for proper equipment use
  - Methods for inspection, assembly, and dismantling of components
  - Identify anchorages
  - A complete understanding of safe working conditions
  - How employees will be rescued
- Provide additional training to workers using window-cleaners' belts in all the following areas:
  - How to select the proper-sized belt
  - How to use anchors and terminals
  - How to deal with obstructions and slippery/wet surfaces
- Provide additional training to workers using boatswains' chairs and rope descent systems in all the following areas:
  - Proper rigging practices
  - Fall arrest requirements
  - Proper methods of descending
  - The effects of wind on window-cleaning operations when a worker is suspended
  - Proper methods of hoisting for ascents

—Continued—

Training

WAC 296-878-110

Rule

WAC 296-878-11005 (Continued)

You must

- Document the training by recording all of the following:
  - The name and signature of the trainer/educator
  - The name and signature of the student
  - The subjects in which the workers were trained
  - The date of the training
  - The location of the training

Note:

- You don't need a specialized educator to provide training**.** You may use a ***qualified person*** to conduct the training. A qualified person is defined as a person who has:
  - Extensive knowledge, training, and experience about the subject matter, work, or project
  - A recognized degree, certificate, or professional standing
  - Successful demonstration of problem solving skills in connection with the subject, work, or project.

Helpful Tool:

Employee Training Documentation Form

This optional tool can help you document your employee training. You can find a copy of this form in the Resource Section of this rule.

WAC 296-878-12005

Make sure building surfaces and fixtures are safe to use

You must

- Make sure building surfaces and ***fixtures*** are safe to be used before you begin the window-cleaning operation. This includes:
  - Guardrails, parapets, cornices and other building surfaces used to support suspended loads
  - Permanently installed fixtures used as anchorages and tiebacks
  - Window-cleaning equipment support systems permanently dedicated to the building.

Notes

WAC 296-878-13005
Inspect the area to be cleaned

You must

- Inspect the building before cleaning to make sure there are no areas that can damage worker fall protection equipment and window-cleaning equipment. Inspect:
  - Sharp edges of parapets
  - Window frames
  - Open projected windows
  - Cornices
  - Overhangs
  - Any other areas that may abrade, sever, weaken, or damage the equipment
- Make sure all working surfaces are safe and free from hazards such as:
  - Grease
  - Oil
  - Other slippery substances

WAC 296-878-13010
Inspect window-cleaning equipment before use

You must

(1) Store your window-cleaning equipment in a way that:

- Is easy to get to, inspect, and safely take out for use
- Provides protection from moisture, sunlight, or corrosion

—Continued—

Inspection Procedures

WAC 296-878-130

Rule

WAC 296-878-13010 (Continued)

You must

(2) Make sure a ***competent person*** inspects these items before each use:

- Window-cleaners' belts
- Boatswains' chairs
- All components of rope descent systems
- Suspension devices
- Certified roof anchorages
- ***Primary support*** ropes or lines
- The descent device
- ***Carabiners*** or shackles
- A seatboard or ***boatswain's chair***
- Wear points on rope descent system components exposed to constant friction

(3) Make sure you don't use any piece of window-cleaning equipment with defects.

- Prohibit makeshift repairs to any piece of window-cleaning equipment
- Label any piece of window-cleaning equipment that is defective "dangerous, do not use"

(4) Secure any padding or softeners so they don't come loose from:

- The surface of the building
- The rope if not attached to the building

Develop Site-Specific Service and Emergency Plans

WAC 296-878-140

Rule

WAC 296-878-14005

Develop a site-specific service and emergency recovery plan for window-cleaning operations

You must

- Make sure that a qualified person develops a written plan for each location to be cleaned that identifies:
  - Hazardous areas
  - ***Drop zones***
  - Safety features
  - Methods for emergency recovery of workers working from suspended equipment, or other types of installations, in the event of equipment failure or any other kind of disability
- Keep the plan at the work site during the entire cleaning operation

Note:

- You may use an outside service for rescue and recovery (such as a fire department) if:
  - The rescue personnel will be able to reach the victims without undue delay
  - They have the necessary equipment to retrieve the victims
  - They are trained and proficient in high angle rescue techniques

—Continued—

Develop Site-Specific Service and Emergency Plans

WAC 296-878-140

Rule

WAC 296-878-14005 (Continued)

Helpful Tool:

Service and Emergency Recovery Plan

This optional tool can help you develop a site specific Service and Emergency Recovery Plan. You can find a copy of this form in the Resource Section of this rule.

WAC 296-878-15005

Select and use appropriate equipment

You must

(1) Make sure that all equipment provided to workers for window-cleaning operations is engineered, designed, and intended for use in commercial applications.

Note:

Equipment that is designed or labeled for recreational use or rescue use only is prohibited for use in window-cleaning operations.

You must

(2) Make sure that the window-cleaning equipment isn't altered unless it's specifically approved in writing by the original manufacturer or a registered professional engineer.

(3) Provide manufacturer's instructions to employees for all window-cleaning equipment they will use.

—Continued—

WAC 296-878-15005 (Continued)

Reference:

Use Table 1 for other window-cleaning equipment requirements.

Table 1
Other window-cleaning equipment

	If you use	Then follow all requirements in
1.	Portable ladders	WAC 296-800-290, Portable Ladders
2.	Supported scaffolds	Chapter 296-24 WAC, Part J-2, Scaffolds
3.	Suspension ropes and lifelines Powered and manual hoists Suspended scaffold equipment	Chapter 296-24 WAC, Part J-2, Scaffolds
4.	Single and multipoint adjustable suspension scaffolds	Chapter 296-24 WAC, Part J-2, Scaffolds
5.	Powered platforms	Chapter 296-24 WAC, Part J-3, Powered Platforms

WAC 296-878-15015

Select appropriate rope for suspended equipment

You must

- Make sure all rope used for suspended equipment has a minimum breaking strength of 5,000 pounds.

WAC 296-878-15020

Select appropriate carabiners

You must

- Use carabiners for connecting hardware or attaching boatswain's chairs, descent devices, and lifelines to anchors.
- Use carabiners with a minimum tensile load of 5,000 pounds.
- Make sure carabiners are either manual or auto-locking.

Note:

You may secure a rope to an anchor with a knot if normal daily use of the rope won't decrease its initial breaking strength below 5,000 pounds.

Equipment

WAC 296-878-150

Rule

WAC 296-878-15025

Use fall protection equipment

You must

(1) Make sure the fall arrest system meets the requirements of WAC 296-24-88050 mandatory Appendix C, Part I, Personal Fall Arrest Systems.

- Use and inspect fall arrest equipment in accordance with the requirements of WAC 296-24-88050, mandatory Appendix C, Part I, Personal Fall Arrest Systems.
- Make sure all workers suspended from a boatswain's chair or ***rope descent system*** use an independent fall arrest system where the fall arrest anchorage is separate from the suspension system anchorage.
- Make sure workers operating powered platforms wear and use a fall arrest system.
- Make sure workers assemble and wear their personal fall arrest equipment before they approach the point of suspension.
- Make sure workers are connected at all times to the fall arrest system while they are suspended.

(2) Make sure the boatswain's chair or rope descent system is connected at all times to the suspension line.

Warning Signs and Barricades

WAC 296-878-160

Rule

WAC 296-878-16005

Provide warning signs and barricades when suspended equipment is used

You must

(1) Place warning signs below suspended equipment

(2) Block the ground area with barricades directly under or next to the work zone

(3) Assign a ***competent person*** to decide if additional protection is necessary

(4) Make sure all tools used by the worker are attached to the worker, seatboard, or boatswain's chair

Reference:

Rules for protecting workers from overhead hazards are listed in WAC 296-800-16055, Make Sure Your Employees Use Appropriate Head Protection.

Notes

WAC 296-878-17005

Maintain clearance between window cleaners and power lines

You must

- Maintain clearances between window cleaners and power lines as indicated in Tables 2 and 3.

Table 2 Minimum Clearances from Power Lines - Insulated Lines		
Voltage	**Minimum distance**	**Alternatives**
Less than 300 volts	3 feet (0.9 m)	-----
300 volts to 50 kv	10 feet (3.1 m)	-----
More than 50 kv	10 feet (3.1 m) plus 0.4 inches (1.0 cm) for each 1 kv over 50 kv	2 times the length of the line insulator, but never less than 10 feet (3.1 m)

Table 3 Minimum Clearances from Power Lines - Uninsulated Lines		
Voltage	**Minimum distance**	**Alternatives**
Less than 50 kv	10 feet (3.1 m)	-----
More than 50 kv	10 feet (3.1 m) plus 0.4 inches (1.0 cm) for each 1 kv over 50 kv	2 times the length of the line insulator, but never less than 10 feet (3.1 m)

—Continued—

Power Line Clearances

WAC 296-878-170

Rule

WAC 296-878-17005 (Continued)

You must

- Follow these procedures when window cleaners need to get closer to power lines than allowed in Tables 2 and 3:
  - Notify the utility company or electrical system operator of the need to work closer than the minimum clearances to power lines before starting the work
  - Begin the work only when the utility company or electrical system operator has deenergized or relocated the lines, or installed protective coverings to prevent accidental contact with the lines.

Window Cleaners' Belts and Anchors

WAC 296-878-180

Rule

WAC 296-878-18005

Select appropriate window-cleaners' belts and anchors

You must

- Make sure ***window-cleaners' belts and anchors*** conform to the:
  - Design, manufacture, and maintenance requirements of ANSI/IWCA 1-14.1-2001

    AND
  - Manufacturer's specifications

WAC 296-878-18010

Inspect the anchors you plan to use for window cleaning

You must

- Make sure you don't use anchors if they:
  - Appear to be damaged
  - Appear deteriorated
  - Appear to be worn
  - Appear to be loose
  - Appear to be unsecured to the building or window frame
  - Won't allow the ***belt terminal*** to easily slip over the anchor head
- Use window-cleaners' belts only if:
  - The area to be cleaned is safe
  - All anchors intended for use are safe

—Continued—

Window Cleaners' Belts and Anchors

WAC 296-878-180

Rule

WAC 296-878-18010 (Continued)

You must

- Make sure window ledges and frames won't impair the safe use of the window-cleaners' belt.

Note:

If unsafe anchors are found, report them to the building owner or manager and don't use them.

WAC 296-878-18015

Use window-cleaners' belts safely

You must

- Make sure workers don't extend more than one arm beyond the window sash when cleaning windows from inside a building.
- Attach one belt terminal to an anchor before you put more than one arm outside the window.
- Pull on the ***terminal strap*** and look for signs of damage to the anchor.
- Attach both belt terminals to anchors before climbing out the window.
- Keep all belt terminals attached during the entire cleaning operation.
- Make sure the worker keeps one terminal attached to an anchor when reentering the window and until the worker is inside.

Window Cleaners Belts and Anchors

WAC 296-878-18020

Move safely on the outside of buildings

You must

- Make sure you travel on the outside of the building only when
  - – You keep at least one window-cleaners' belt terminal attached at all times
  - – The anchors aren't more than 48 inches apart

Note:

- Anchors can be up to 72 inches apart if:
  - The sill or ledge is continuous
  - The sill or ledge is at least 12 inches wide
  - The sill or ledge has a slope less than 5 degrees
  - There is at least 6 inches of window sill in front of the ***mullions***

Notes

WAC 296-878-19005

Select appropriate boatswain's chairs

You must

(1) Make sure that when you use a ***block and tackle***, it is the correct size, including:

- Correctly-sized ball bearings or bushed blocks
- Safety hooks
- Eye-spliced rope
- A minimum breaking strength of 5,000 pounds

(2) Make sure all rope used with a boatswain's chair has a minimum breaking strength of 5,000 pounds, including rope used for:

- Suspension
- Block and tackle
- Seat slings

(3) Make sure the ropes on boatswain's chair seat slings:

- Are reeved through the 4 corner holes in the seat
- Cross each other on the underside of the seat
- Are rigged so the chair can't slip out of a level position

Boatswain's Chairs

WAC 296-878-190

Rule

WAC 296-878-19010

Safely use boatswain's chairs rigged with a block and tackle

You must

(1) Make sure the ***rated capacity*** or the maximum intended load, whichever is less, isn't exceeded.

(2) Make sure the suspension rope stays vertical between the boatswain's chair and suspension device unless all of these requirements are met:

- The rigging has been designed by a qualified person
- The scaffold can be easily reached by rescuers
- The suspension rope is protected from damage when a change in direction occurs
- The scaffold won't swing and contact another surface

(3) Make sure a suspension height of 75-feet above grade or building setback isn't exceeded.

Exemption:

- Suspension height may be up to 130 feet above grade or building setback if the boatswain's chair block and tackle has all of the following:
  - An automatic braking system
  - A design that minimizes the amount of force required to raise or lower the suspended worker
  - An automatic braking system that automatically maintains an elevation when no force is applied to the tackle
  - A system that doesn't slip

—Continued—

WAC 296-878-19010 (Continued)

You must

(4) Prohibit tying any kind of knot in a block and tackle system to maintain elevation.

(5) Make sure another worker is stationed below any boatswain's chair rigged with a block and tackle who can assist the suspended employee.

(6) Make sure workers don't attempt to increase the work area by swinging, swaying, or other maneuvers.

Notes

WAC 296-878-20005

Select appropriate rope descent systems

You must

- Make sure the rope descent system is designed, used, and maintained according to:
  - ANSI/IWCA 1-14.1-2001
  - The manufacturer's instructions
- Make sure the rope descent system has been manufactured and is intended to be used for ***window cleaning.***

Note:

Equipment that is designed or labeled for recreational use or rescue use only is prohibited for use in window-cleaning operations.

You must

- Make sure the rope descent system components are compatible and have a minimum tensile strength of 5,000 pounds.
  - This doesn't apply to the seatboard.
- Make sure the rope descent system has specific use instructions for each component.

Rope Descent Systems

WAC 296-878-200

Rule

WAC 296-878-20010

Safely use rope descent systems

You must

(1) Make sure workers use extreme care when using rope descent equipment around electrical service, heat sources, and turbulent areas, such as air vents.

(2) Connect the seatboard or boatswain's chair to the descent device with a manual or auto locking carabiner.

(3) Make sure workers are positioned in the seatboard or boatswain's chair before being suspended.

(4) Make sure workers don't reach more than 6 feet in any direction as measured from a centerline straight down from where the suspension rope bears on the building.

(5) Make sure workers don't descend rapidly, swing excessively, or stop suddenly.

(6) Make sure that, in addition to the suspended worker, there is one other person at the jobsite who is skilled in using the rope descent system and rescue procedures.

(7) Make sure you don't exceed a 300-foot height of descent as measured from grade or building setback.

(8) Make sure your site-specific service plan addresses the following hazards for descents over 130 feet as measured from grade or building setback:

- Sudden weather changes, such as wind gusts, micro bursts, or tunneling wind currents
- Inability of the rope descent system to function without using excessive force
- Workers suspended for long periods of time
- Rerigging and movement of main suspension and safety lines

—Continued—

WAC 296-878-20010 (Continued)

You must

(9) Stabilize workers suspended from a rope descent system whenever the descent is higher than 130 feet, as measured from grade or building setback.

(10) Prohibit workers from working when wind speed makes any stabilization equipment ineffective.

Note:

- Provisions for stabilizing workers may include:
  - Continuous stabilization, such as mullion tracks
  - Intermittent stabilization, such as detent pins/buttons
  - Work station stabilization, such as suction cups

WAC 296-878-20015
Safely use rope descent devices

You must

(1) Make sure the rated capacity or the maximum intended load, whichever is less, isn't exceeded.

(2) Make sure the descent device manufacturer's specifications for rope diameter and construction are followed.

(3) Make sure the rope is rigged through the descent device for a controlled rate of descent.

(4) Make sure the attachment point on the descent device is one piece with no gates or openings.

(5) Make sure the descent device will remain stationary when positive action is taken.

Notes

Equipment Prohibited

WAC 296-878-210

Rule

WAC 296-878-21005

Prohibit equipment from use

You must

- Prohibit use of the following equipment for window-cleaning operations:
  - Portable sills
  - Window jacks
  - ***Capstan devices*** to suspend workers
  - Suspension or fall-arrest ropes that are made entirely of polypropylene

Notes

Safety Standards for Window Cleaning

WAC 296-878-220

Definitions

Anchor, window-cleaners' belt:

Fall-preventing attachment points for direct attachment of the terminal portion of a window-cleaners' belt.

Belt terminal:

That part of the safety belt that is attached to the anchor during the window-cleaning operation.

Block and tackle:

A lifting device consisting of one or more pulley blocks reeved with chains, wire ropes, or fibre ropes used solely for raising and lowering a load or moving a load horizontally.

Boatswain's chair:

A single-point adjustable suspension scaffold consisting of a seat or sling designed to support one worker in a sitting position.

Capstan device:

An upright, spool-shaped cylinder used for hoisting or lifting weights that is turned by a motor or by hand.

Carabiner:

An oblong metal ring with an openable spring-hinged side, used to clip a rope to an anchoring device.

Competent person:

One who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Safety Standards for Window Cleaning

WAC 296-878

Definitions

Drop (drop zone):

A vertical area or work zone accessed by the worker or piece of equipment during one descent.

Drop line:

A vertical line from a fixed anchorage, independent of the work surface.

Fixture:

Attachments, anchors, anchorages, tie backs or support equipment permanently dedicated to a given site.

Grade:

Means the ground, floor, sidewalk, roof, or any level surface that is considered a safe place to work.

Lanyard:

A flexible line to secure a wearer of a safety belt or harness to a drop line, lifeline or fixed anchorage.

Mullion:

A slender, vertical dividing bar between windows, panels, etc.

Primary support/suspension:

A ***working line*** or approved anchorage used for attachment of a working line.

Qualified person:

A person is qualified if they have one of the following:

- Extensive knowledge, training, and experience about the subject matter, work, or project
- A recognized degree, certificate, or professional standing
- Successful demonstration of problem solving skills in connection with the subject, work, or project.

Definitions

Rated capacity:

The combined weight of workers, tools, equipment, and other materials that the device is designed and installed to lift and support.

Rope descent system (RDS):

An assembly of components that allows the operator to control the rate of descent at any time. A rope descent system includes the following components:

- Suspension devices
- Certified roof anchorages
- Primary support ropes or lines
- The descent device
- Carabiners or shackles
- A seatboard or boatswain's chair

Terminal strap:

The strap or rope attached to the waist band on one end, and to the belt terminals on the other end.

Window cleaning:

Cleaning, wiping, restoring or other methods of cleaning windows.

Working line:

A rope suspended from an anchorage and used to access parts of a building.

Notes